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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,178	09/09/2003	Harry W. Sarkas	2000US01 C	3345
43320                      7590                      02/10/2009 EVAN LAW GROUP LLC 600 WEST JACKSON BLVD., SUITE 625 CHICAGO, IL 60661				
			EXAMINER MAYEKAR, KISHOR	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 02/10/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/658,178

## Applicant(s)

SARKAS ET AL.

## Examiner

Kishor Mayekar

## Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's arguments, see starting in page 4 through last page 6, in the remarks filed 28 January 2009, with respect to the rejection(s) of claim(s) 2-7 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection in the last Office action has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Sheer et al. (US 4,181,704) to the teachings the injection of a material into a cathodic column of an electric arc. And the finality of that action is withdrawn.

### ***Claim Rejections - 35 USC § 112***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 4 and 7 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, for reasons as of record.

### ***Claim Rejections - 35 USC § 102 and § 103***

4. Claims 2, 3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Sheer et al. (U S 4,181,704) in light of Sheer et al. (US 3,644,781 or US 3,900,762). Sheer's invention is directed to a process for the removal of sulfurous gases from the emission of chemical processes. Sheer discloses in the abstract that the process comprises the step of passing a simple or complex metal oxide in the form of a coarsely divided powder entrained in a conveying gas through a high energy transfer zone wherein the powder is subjected to temperatures sufficient to vaporize the powder and the powder is substantially vaporized to form a hot effluent jet containing metal oxide vapor. Sheer further discloses that the coarse metal oxides is entrained in a suitable working gas, such as air (a gas containing oxygen), and the passing is by injection, wherein the entrained coarse powder, if of a complex molecular composition is decomposed into simple oxides, the simple oxides are vaporized to form the hot effluent jet, and the oxide vapor is then allowed to condense into a ultra-fine, highly reactive fume (c. 3, l. 22-35), and wherein the oxide vapor is allowed to condense to ultra-fine solid particles with size in the range of 150 to 900 Angstrom which is equal to 15 to 90 nm (c. 4, l. 52-56). Sheer also discloses that the high energy transfer zone is an electric arc and the use of the electric arc in the cited references US 3,644,781 or US 3,900,762, wherein the electric arc is a free-burning electric arc and the injection of material into a cathodic column of the electric arc (c. 4, l. 5-47 and c. 6, l. 37-47). As such, Sheer discloses all the recited steps and anticipates the above claims.

5. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sheer '704 in view of Applicant's remarks. The difference between Sheer as applied and the instant claim is the provision that the plasma using a free-burning electric arc is generated from a transferred electric arc. As argued by Applicant in page 5 of the remarks filed 28 January 2009, the transferred electric arc is a subclass of the plasma generated by a free burning electric arc. It appears from the remarks that the transferred electric arc is a known type of free-burning electric arc. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Sheer such that the plasma is generated from a transferred electric arc which is one the type of the free-burning electric arc, as per Applicant's remarks. One skilled in the art would have been motivated to make such a modification because the selection of any of known equivalent electric arcs for the generating of plasma would have been within the level of ordinary skill in the art.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sheer '704 in view of GB 2,359,096 A issued to Deegan et al. The difference between Sheer as applied above and the instant claim is the provision that the introducing step into the current carrying region of the anodic column of the free-burning electric arc. Deegan shows in a plasma reactor for the production of fine powder that the polarities of the electrode may be reversed (p. 9, l. 6-10). Therefore, it would have been obvious to one having ordinary

skill in the art at the time the invention was made to have modified the method of Sheer such that the plasma is generated from a free-burning electric arc with the polarity reversed, as per the teachings of Deegan. One skilled in the art would have been motivated to make such a modification because the selection of any of known equivalent electric arcs for the generating of plasma would have been within the level of ordinary skill in the art.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sheer '704 in view of Applicant's remarks as applied to claim 7 above, and further in view of 6B '096, for the same reason as applied to the rejection of claim 5 above to the limitation of anodic column.

#### *Response to Arguments*

8. Applicant's arguments filed 28 January 2009 have been fully considered but they are not persuasive because of the new grounds of rejection under 35 USC 102 and 103 as set forth in the paragraphs above.

To the argument that claims 4 and 7 are not indefinite since "the plasma generated by a transferred electric arc is a subclass of plasma generated by a free-burning electric arc", the examiner finds this is unpersuasive. Because in the section of the background of the invention, it discloses "[m]ethods of plasma formation are previously known in the art

and may be selected from a group comprising radio-frequency fields, ... free-burning electric arcs, transferred electric arcs ..." and references to free-burning electric arcs (such as US 3,900,762) and transferred electric arcs (such as US 5,460,701). It appears that there is a difference in operation or in design between the free-burning electric arc and the transferred electric arc. Therefore, the transferred electric arc is not a subclass or a known type of a free-burning electric arc.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Forgensi et al. (US 4,076,640) teaches in a method for manufacturing powder by electric arc the feeding of a precursor along with an oxygen gas and an argon gas (Example II).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kishor Mayekar/  
Primary Examiner, Art Unit 1795